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could be done with better registration within the States. It will be difficult for the Surgeon General ever to report effectively on the prevalence of the preventable diseases until the individual States have at their disposal a sufficient amount of accurate and complete registry data. This can be made possible only by the passage and enforcement of the model bill.

A Registration Area for Sickness.

Let me, therefore, suggest that the health committee of this association take up this cause by resolution of this meeting in order to encourage at least a few States to perfect their registration of the preventable diseases. Ultimately, there should be an approved registration area for morbidity under the jurisdiction of the Surgeon General's office very much as the Census Bureau at the present time provides for the registration and statistical analysis of data on births and deaths. This much has already been accomplished by the Russian Government throughout the Empire. Our plan of campaign should aim for as much. Many practical difficulties will be encountered in the operation of this system, but our obvious duty is first to obtain an effective and uniform statute. The amount of effort required to bring about this desired condition will be small compared with the benefits which will ultimately accrue to the participating organizations.

SANITARY WORK IN VERA CRUZ

DURING THE FIRST THREE WEEKS OF THE AMERICAN OCCUPATION.

By G. M. GUITERAS, Surgeon, United States Public Health Service.

Sanitary Condition of Vera Cruz at the Time of the American Occupation.

Considering the fact that Vera Cruz is a tropical seaport town with a mixed Spanish and Indian population, its sanitary condition at the time of the American occupation was better than one might have expected. The streets were paved, many of them with asphalt, and kept fairly clean. The city was provided with good drainage and sewerage systems. The water supply is derived from springs at some distance from the city, and is of good quality, but unfortunately deficient in quantity. The storage capacity of the reservoir is also insufficient, and it is said that during the rainy season the water becomes very muddy.

The public markets were not clean, and a number of other public buildings were dirty and ill kept. The hospitals, of which there are three, were in poor condition; the lazaretto for the treatment of smallpox cases was in a lamentable state of ruin, and the patients

were without proper nursing or medical attention. Mosquitoes were not troublesome except in some of the outlying districts of the city. Hotels and private residences are almost all unscreened, and yet it was rare to be disturbed by these insects.

Stegomyia and anophelines were particularly rare. Surg. von Esdorf, in a mosquito survey of the city, found but few anopheline-breeding places. It is true the rainy season had but just commenced, but under like circumstances of season and other existing conditions one would have expected to find mosquitos much more prevalent than they were in Vera Cruz. This unexpected state of things was no doubt due to the antimosquito work which, for some years, had been carried on by the local junta de salubridad (board of health). On the other hand, flies were numerous.

Mexican Sanitary Organizations.

At the time of the American occupation sanitary measures were distributed under three more or less related powers, to wit:

- (1) "La sanidad maritima," or maritime quarantine.
- (2) The local sanitary board of the junta superior de salubridad de Mexico. In other words, a board of health for the State of Vera Cruz under the direction of the national health authorities in Mexico City.
- (3) A purely local or municipal health board, with limited powers.

The first two were controlled by the Mexican Federal Government, and the third by the city council of Vera Cruz. Of these three sanitary entities, the second alone was holding together after the American occupation, and, though naturally demoralized, was doing some work; the first had been superseded by the American quarantine authorities; and the third was entirely in abeyance.

The maritime quarantine establishment was well equipped. Its headquarters and plant were housed in a large and handsome stone building on the sanitary pier, an excellent concrete dock. The plant consisted of four steam disinfecting chambers—three large and one small—their ends being properly separated into a foul and clean side by a stone partition. Boilers, shower baths, dressing rooms, office rooms, laboratory, boarding boats, and, in fact, all the necessary equipment of a first-class quarantine station for the handling of a large number of passengers and their baggage was at hand. This building was occupied by the Twenty-eighth United States Infantry, and only the small steam disinfecting cylinder was available for sanitary purposes. The personnel of the station consisted of 14 persons, including 2 medical officers, a clerk, an engineer, fireman, boatmen, and other employees.

The local sanitary board of the junta superior de salubridad was housed in a small frame building on the water front, containing the

office and storeroom for disinfecting material. This building was selected as the headquarters of the department of public health.

The personnel of the department consisted of 4 medical officers, a civil engineer, 25 sanitary inspectors, about 16 "petroleros" or oilers, and 10 fumigators. The main purpose of this organization was the destruction of mosquitos and their breeding places, and incidentally a general supervision of sanitary matters. That the antimosquito work had been effective was demonstrated by the few mosquitos found.

For the purpose of carrying out the objects of this sanitary board the city was divided into four districts, each in charge of a medical officer. Each district was further divided into subdistricts, the latter under the supervision of sanitary inspectors. The assignment of oilers was so arranged that every part of the city was covered once every eight or nine days.

The fumigating force, under the direction of the medical officers or the sanitary inspectors, was employed in fumigating and disinfecting infected houses or in cleaning up insanitary conditions. The sanitary inspectors were uniformed and wore a badge, showing a number and the words "Agente de sanidad" (sanitary agent).

The *modus operandi* was as follows: The sanitary inspectors, oilers, and fumigators met at the office at 8 a. m. to receive instructions and immediately proceeded to their districts. At 11 a. m. they returned to the office and reported any insanitary conditions found, the existence of illness, etc., to the medical officer in charge of the district, the necessary action being taken at once to investigate and remedy the evils reported to exist. At 1 p. m. the inspection would be resumed and a second report made at 4 p. m.

In accordance with the reports made, breeding places for mosquitos were covered with oil or otherwise gotten rid of, infected premises were fumigated, persons reported ill and not in charge of a medical attendant were seen by a medical inspector, and all insanitary conditions liable to prejudice the public health were called to the attention of those responsible for the same, in writing, giving them a reasonable but specified time to remove the nuisance, under certain penalties of fine or imprisonment or both, as provided for in the Sanitary Code.

Existing Sanitary Forces Utilized.

The orders from headquarters were to utilize in all civil administrative offices the personnel in office prior to the American occupation. In so far as the sanitary department is concerned, much difficulty was experienced in carrying this out. Dr. Iglesias, the head of the sanitary department, both maritime and local, had left Vera Cruz for Mexico City immediately after the American forces

took possession, and his entire force was undecided whether to follow his example or to continue under the new dispensation. The majority of the personnel was willing to work, but they feared the criticism of the press, of their friends and acquaintances, and the public in general.

It took considerable tact, patience, and perseverance to surmount these difficulties. The press was appealed to for the purpose of creating a favorable atmosphere, and it was insisted upon that the sanitary service was neither political nor military, that its work was humanitarian, directed to safeguarding not only the health of the American troops but also that of the people of Vera Cruz, their own fellow citizens. After much uncertainty and hesitancy, toward the end of the first week in May the personnel of the sanitary department decided to continue at their posts. Out of a personnel of about 75 only 5 or 6 were permanently separated from the service.

Organization of Department of Public Health.

The department of public health, as organized on May 2, was based on the existing organization as above outlined.

The existing organization was potentially efficient, but in practice it was deficient, due to the fact that it had not been given proper support by the governing authorities. There seemed to be some lack of supervision by those in charge of the service.

This was at once corrected. The sanitary inspectors and other employees were instructed in their duties and given to understand that orders were to be carried out impartially.

The department of public health as finally organized comprised the following divisions:

- (1) Maritime quarantine, both incoming and outgoing.
- (2) General sanitary inspection and the enforcement of the rules and regulations of the sanitary code.
- (3) Antimosquito measures.
- (4) Fumigation and disinfection of infected premises.
- (5) Supervision of hospitals.

The head of the department, the director of public health, reported to the provost-marshal general, as did also the head of the department of public works, which included street cleaning and the care of the markets and public parks. The two worked in unison, cooperating one with the other.

Much of the preliminary work of the department of public health had been outlined and partly put in effect before the actual organization of the department.

A study of the mortality records was undertaken. The records of the civil registrar were examined by Surg. von Ezdorf and a mortality table was prepared comprising the years 1913 and 1914 up to and

including April 20, the date prior to the American occupation. This table, a copy of which is herewith attached, shows the total mortality and that from certain specified diseases, which were considered of particular importance from a sanitary point of view. The stillbirths are included in the monthly totals. Estimating the population of Vera Cruz at 42,000 the death rate for 1913 is 43.2 per thousand, including stillbirths, and 40.5 excluding stillbirths. The mortality from tuberculosis is above the average. The excessive mortality from malaria is peculiar in view of the fact that anophelines and their breeding places were difficult to find. It may be due either to the introduction of cases originating in the interior of the State of Vera Cruz or to errors in diagnosis. This was left for future study.

Although not shown in the table, the records show that the infantile death rate is high.

Maritime Quarantine.

I took charge of the quarantine service immediately on my arrival in Vera Cruz, April 28, having been assigned thereto by Medical Inspector Spratling, United States Navy, then in charge of the sanitary department. Both incoming and outgoing quarantine were put in effect at once and the necessary measures taken to guard Vera Cruz against the introduction of quarantinable disease.

The principle on which these measures were based was that, for the time being, Vera Cruz was to be considered as a subtropical United States port, and the quarantine regulations of the United States Treasury Department relating thereto were made to apply to Vera Cruz, with certain modifications, as follows:

(1) Inspection of crews and passengers and fumigation of vessels bound for the United States.

(2) No detention of vessels arriving from ports suspected of being infected with yellow fever. Such vessels were fumigated and the crew and passengers kept under observation for a period of six days. Special care was taken with vessels coming from Progreso, Campeche, Frontera, and other southern Mexican ports where yellow fever had been reported during the past six months.

General Sanitary Inspection and the Enforcement of the Rules and Regulations of the Sanitary Code.

As previously stated in this report, sanitary inspection work was in the hands of the four medical inspectors, each having a number of sanitary inspectors under his orders. Charts were prepared showing the limits of the district of each inspector at a glance and also the exact position of any infected dwelling or insanitary condition. All violations of the sanitary code were reported by the inspectors and the necessary steps at once taken to remedy the evil or impose the penalty provided by the code.

The sanitary code of the State of Vera Cruz is a model one. It is comprehensive, gives the sanitary authorities ample powers, and imposes sufficient penalties for violation thereof. If its provisions had been strictly carried out the sanitary condition of Vera Cruz would have been excellent. One of the first duties of the department of public health was to instill vigor and thoroughness into the inspecting force, exacting strict compliance with the provisions of the sanitary code.

A smallpox outbreak prevailed in Vera Cruz at the time of the American occupation and gave considerable trouble and annoyance to the health department, for the reason that it was viewed with alarm by the military authorities.

It is a curious commentary on the mental processes whereby one looks with indifference at health conditions in one's own country, but becomes unduly exercised when a similar condition is found elsewhere. Most of the troops had come from Galveston, Tex., where smallpox was more prevalent than in Vera Cruz, yet in the former city no one gave the outbreak any special attention, while in the latter it attracted the greatest attention.

However, it was the duty of the department of public health to eliminate, as far as practicable, all communicable diseases and it set to work against the spread of smallpox in common with other dangerous communicable diseases. Vaccine was ordered and plans were made to open four free vaccination stations as soon as the vaccine was received. In the meantime, with the supply on hand, orders were issued that all persons unprotected against smallpox entering Vera Cruz by land or sea must be vaccinated.

The quarantine officer, Acting Asst. Surg. I. A. Campbell, carried out this order in connection with his quarantine duties for such persons coming by water, and a special medical sanitary inspector was detailed to board all trains on the outskirts of the city and vaccinate all passengers unprotected against smallpox.

A plotted map showing the points where smallpox cases had originated during the past year was prepared, with the object of carrying out a special disinfection of all such dwellings.

In connection with the above measures against smallpox, but also directed against the propagation of other important diseases, an antify campaign was inaugurated. It consisted of the use of fly-traps, fly paper, the screening of foodstuffs, sanitary stables, and last, but not least, insistence on general cleanliness.

Antimosquito Work.

As has been already stated, mosquitoes were not numerous in Vera Cruz, and *Stegomyia* and *Anopheles* were particularly scarce.

Under the department of public health the antimosquito campaign was continued on the same lines as obtained during the previous

régime, except that its scope was somewhat enlarged and steps were taken to clean out a drainage canal where anopheline larvæ had been found.

Fumigation and Disinfection of Infected Premises.

All buildings or dwellings considered infected were disinfected by the sanitary department, and when insanitary conditions existed which could not be removed by those living on the premises on account of poverty or other adequate reason, the work was done by the department. In other cases, the insanitary condition complained of was brought to the attention of the owner or tenant, a specified time for the abatement of the nuisance being specified, and on failure to comply therewith the fine or imprisonment provided for by the sanitary code was imposed. Printed forms were used for the notices above mentioned.

Deaths reported in Vera Cruz, 1913-1914 (Jan. 1 to Apr. 20).

	Malaria.	Tubercu- losis.	Cerebro- spinal menin- gitis.	Small- pox.	Total for month including still- births.	Still- births.
1913.						
January.....	16	27			148	11
February.....	8	27		1	151	9
March.....	5	35			140	4
April.....	5	26		3	128	8
May.....	9	29		5	149	5
June.....	10	31		4	141	13
July.....	19	23	3	1	151	7
August.....	14	29	1		157	13
September.....	14	16	5		133	11
October.....	22	23	3		162	19
November.....	19	30	3	3	163	10
December.....	16	27	20	1	192	2
Total.....	157	323	35	18	1,815	112
1914.						
January.....	6	27	6	2	180	17
February.....	5	22	3	2	123	12
March.....	5	23	3	23	177	9
April 1-20.....	9	22	6	10	127	10

SOLUBLE ALUMINUM COMPOUNDS.

THEIR OCCURRENCE IN CERTAIN VEGETABLE PRODUCTS.

By C. N. MYERS, Expert in Organic Chemistry, and CARL VOEGLIN, Professor of Pharmacology, Hygienic Laboratory, United States Public Health Service.

During the last year the United States Public Health Service started an extensive investigation into the cause of pellagra. Among other questions studied, the relation of diet to this disease was given consideration. From a survey of the dietary peculiarities of countries in which pellagra is endemic, it seemed especially interesting to determine the effect of a mainly vegetable diet on the animal